

one eighth inch = one foot
one quarter inch = one foot
three eighths inch = one foot
one half inch = one foot
three quarters inch = one foot
one inch = one foot
one and one half inches = one foot
two inches = one foot
three inches = one foot
four inches = one foot
five inches = one foot
six inches = one foot
seven inches = one foot
eight inches = one foot
nine inches = one foot
ten inches = one foot
eleven inches = one foot
twelve inches = one foot

GENERAL NOTES

A. GENERAL:

- SCOPE OF THE PROJECT INCLUDES WORK SHOWN ON THE DRAWINGS AND IN THE SPECIFICATIONS.
- WORK SHOWN ON THE DRAWINGS IS INCLUSIVE, WHETHER SHOWN AT EACH LOCATION OR NOT, AS LONG AS IT IS SHOWN IN ONE LOCATION ON THE DRAWINGS OR IN THE SPECIFICATIONS WORK SHALL BE PROVIDED.
- THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED WORK. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES.
- THESE DRAWINGS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY OF COORDINATION WITH VARIOUS TRADES AND INCLUDE TURNS, BENDS, ADDITIONAL LENGTHS OF DUCTS, PIPING AND ELEVATION CHANGES, AND TRANSITIONS WITHOUT ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR MUST EXAMINE CONSTRAINTS AND THE AVAILABLE SPACE AT THE JOB SITE THAT MAY REQUIRE CUSTOM FABRICATION OR DISASSEMBLY AND RE-ASSEMBLY OF CERTAIN EQUIPMENT.
- PROTECT MATERIALS INCLUDING DUCTS AND PIPES FROM DUST AND DEBRIS AND KEEP OPEN END OF PIPES AND DUCTS COVERED UNTIL READY FOR INSTALLATION OF NEXT SEGMENT OF WORK. LINED DUCTS THAT ARE DIRTY WILL NOT BE ACCEPTABLE.
- WORK DAMAGED OR CUT INTO DURING CONSTRUCTION SHALL BE PATCHED, REPAIRED, PAINTED AND FINISHED TO MATCH EXISTING ADJACENT SURFACES IN TEXTURE, COLOR, AND FINISH.
- MECHANICAL EQUIPMENT, MATERIALS, AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE 2013 CALIFORNIA BUILDING CODE, CALIFORNIA MECHANICAL CODE, CALIFORNIA ENERGY CODE, CALIFORNIA PLUMBING CODE AND CALIFORNIA FIRE CODE.
- INSULATION SHALL COMPLY WITH THE REQUIREMENTS OF CALIFORNIA ENERGY CODE AND PROJECT SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.
- AIR CONDITIONING UNITS SHALL BE CERTIFIED PER THE REQUIREMENTS OF THE CALIFORNIA ENERGY COMMISSION.
- WORK TO BE INSTALLED OUTDOORS; INCLUDING, BUT NOT LIMITED TO: EQUIPMENT, DUCTS, PIPING, CONTROL DEVICES, SMOKE DETECTORS, AND VARIABLE FREQUENCY DRIVES SHALL BE COMPLETELY WEATHERPROOFED.
- OUTSIDE AIR INTAKES SHALL BE A MINIMUM OF 10'-0" FROM OR 3'-0" BELOW ANY VENTS OR EXHAUST OUTLETS.
- CUTTING, BORING, SAWCUTTING OR DRILLING THROUGH NEW OR EXISTING STRUCTURAL ELEMENTS SHALL BE DONE ONLY WHEN SO DETAILED ON THE STRUCTURAL DRAWINGS. COORDINATE EXACT LOCATION OF CORE DRILLING, CUTTING OF FLOOR SLAB, OR WALLS OF THE BUILDING WITH THE STRUCTURAL DRAWINGS. DO NOT CUT OR DRILL HOLES IN ANY STRUCTURAL ELEMENT WITHOUT APPROVAL OF THE ARCHITECT.
- COORDINATE TEMPERATURE SENSOR AND THERMOSTAT LOCATION WITH FLOOR ARCHITECTURAL AND FURNITURE FLOOR PLANS. TEMPERATURE SENSOR AND THERMOSTAT ELEVATION SHALL BE 46-INCH ABOVE FINISHED FLOOR AT CENTERLINE OF THE DEVICE AND IN COMPLIANCE WITH ADA.
- ROOM THERMOSTATS SHALL HAVE THE CAPABILITY TO SEQUENCE HEATING AND COOLING, AND TO TERMINATE HEATING AT 70°F. THE HEATING SETPOINT MUST BE ADJUSTABLE DOWN TO 55°F OR HIGHER.

- CONDITIONS THAT, IN THE CONTRACTOR'S OPINION, PREVENT THE EXECUTION OF THE WORK AS INTENDED SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IN THE FORM OF AN RFI BEFORE BEGINNING THE WORK IN QUESTION.
- WORK PERFORMED UNDER THIS CONTRACT IS SUBJECT TO INSPECTION BY THE BUILDING OWNER, ARCHITECT, AND ENGINEER FOR CONFORMITY WITH EXISTING BUILDING SYSTEMS, QUALITY OF PRODUCTS AND INSTALLATION. CONTRACTOR SHALL NOT PERFORM WORK THAT MAY ADVERSELY AFFECT THE EXISTING BUILDING SYSTEMS OPERATION, EITHER DUE TO IMPROPER INSTALLATION, INADEQUATE COORDINATION OR POOR WORKMANSHIP. WORK INSPECTED AND FOUND UNACCEPTABLE BY THE OWNER, ARCHITECT SHALL BE PROMPTLY REPLACED OR CORRECTED AT NO ADDITIONAL COST.
- FIELD OBSERVATION AND SUPPORT SERVICES PERFORMED BY THE ENGINEER PRIOR TO, DURING, OR AFTER CONSTRUCTION ARE FOR THE PURPOSE OF ACHIEVING QUALITY CONTROL AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
- DUCTWORK AND PIPING PENETRATING SLAB TO SLAB PARTITIONS SHALL BE SEALED AIRTIGHT. A RESILIENT CAULKING AND PACKING SHALL BE USED. SEAL OPENINGS AROUND DUCTWORK AND PIPING PENETRATING FIRE RESISTIVE RATED WALLS AND FLOORS TO MAINTAIN RATING INTEGRITY.
- PROVIDE ACCESS DOORS/PANELS REQUIRED FOR SERVICING LISTED ITEMS SUCH AS AIR TERMINAL UNITS, FIRE DAMPERS, COMBINATION SMOKE/FIRE DAMPERS, VOLUME DAMPERS, VALVES, AND DEVICES REQUIRING ACCESS WHETHER OR NOT SUCH ACCESS IS SHOWN ON DRAWINGS. COORDINATE EXACT LOCATION OF CEILING, WALL, OR FLOOR ACCESS PANELS WITH ARCHITECTURAL DRAWINGS.

B. EQUIPMENT:

- A MAINTENANCE LABEL SHALL BE AFFIXED TO MECHANICAL EQUIPMENT AND A MAINTENANCE MANUAL SHALL BE PROVIDED FOR THE OWNER'S USE.
- INSTALL EQUIPMENT IN ACCESSIBLE LOCATION AND PROVIDE ADEQUATE SERVICE CLEARANCE FOR NORMAL MAINTENANCE WITHOUT REQUIRING REMOVAL OF MECHANICAL, ARCHITECTURAL, ELECTRICAL OR STRUCTURAL ELEMENTS.
- FOR EQUIPMENT LOCATED ABOVE CEILING, INSTALL SUCH EQUIPMENT CLOSE ENOUGH TO THE CEILING ELEVATION TO FACILITATE READY ACCESS FOR MAINTENANCE AND SERVICING.
- AIR MOVING SYSTEMS SUPPLYING AIR 2,000-CFM OR MORE TO ENCLOSED SPACES WITHIN BUILDING SHALL BE EQUIPPED WITH AN AUTOMATIC SHUTOFF VIA SMOKE DETECTOR.
- VERIFY ELECTRICAL CHARACTERISTICS WITH ELECTRICAL DRAWINGS PRIOR TO BID, MATERIAL PURCHASE, AND INSTALLATION.

C. DUCTWORK:

- UNLESS OTHERWISE NOTED, DIMENSIONS FOR DUCTS, GRILLES, DAMPERS, ETC. ARE IN INCHES.
- DUCTWORK DIMENSIONS ARE INSIDE FREE AREA.
- DIMENSIONS OF ACOUSTICALLY LINED DUCTWORK AS SHOWN ON PLANS ARE CLEAR INSIDE DIMENSIONS. INCREASE SIZE OF DUCT BY THICKNESS OF ACOUSTICAL LINING.
- EXPOSED DUCTWORK IN CONDITIONED SPACE SHALL BE INTERNALLY LINED WHETHER SHOWN ON THE DRAWINGS OR NOT.

- MATERIAL EXPOSED WITHIN A DUCT OR PLENUM SHALL COMPLY WITH 2010 CALIFORNIA MECHANICAL CODE.
- FOR EXACT LOCATIONS OF DIFFUSERS AND GRILLES, SEE ARCHITECTURAL DRAWINGS.
- PROVIDE BUTTERFLY DAMPERS FOR ROUND DUCTS AND OPPOSED BLADE DAMPERS FOR RECTANGULAR DUCTS FOR ALL BRANCH TAKEOFFS.
- MANUAL VOLUME DAMPERS SHALL BE PROVIDED FOR EACH AND EVERY AIR INLET AND OUTLET. LOCATE MANUAL VOLUME DAMPER AT BRANCH TAKE OFF FOR THE OUTLET, OR AS FAR FROM THE OUTLET AS POSSIBLE.
- COMBINATION FIRE/SMOKE DAMPERS SHALL BE FIRE MARSHALL APPROVED AND INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. MANUFACTURER'S INSTRUCTIONS SHALL BE MADE AVAILABLE TO THE INSPECTING AUTHORITY.
- PROVIDE DUCT ACCESS PANELS FOR COMBINATION FIRE/SMOKE DAMPERS.
- PROVIDE DOUBLE RADIUS TURNING VANES IN RECTANGULAR 90° DUCT ELBOWS.
- PROVIDE SPLITTER VANES IN RECTANGULAR RADIUS 90° DUCT ELBOWS WITH RADIUS TO WIDTH RATIO OF ONE OR LESS.
- CIRCULAR METAL DUCTWORK SHALL BE SPIRAL WITH PRE-FABRICATED FITTINGS.
- ROUND DUCT TAKEOFFS FROM RECTANGULAR DUCT SHALL BE MADE WITH FACTORY FABRICATED SPIN-IN OR CONICAL FITTINGS.
- LOW PRESSURE FLEXIBLE DUCT LENGTH SHALL NOT EXCEED 6-FOOT AND NOT LESS THAN 4-FOOT. USE OF MEDIUM PRESSURE FLEXIBLE DUCT AT INLET TO AIR TERMINAL UNITS IS NOT PERMITTED. MINIMUM RADIUS SHALL BE 1.5 TIMES DIAMETER OF DUCT.
- PROVIDE NECESSARY PLENUMS OR TRANSITIONS FOR FLEXIBLE DUCT CONNECTIONS TO DIFFUSERS AND REGISTERS.
- LOCATION OF POWER AND LOCAL DISCONNECTS FOR COMBINATION FIRE/SMOKE DAMPERS SHALL BE PROVIDED BY MECHANICAL CONTRACTOR UNLESS OTHERWISE INDICATED ON ELECTRICAL DRAWINGS.
- EXPOSED DUCTWORK AND FITTINGS IN SYSTEM DESIGNATED FOR PAINTING SHALL BE SANDED AND SEALED IN PREPARATION FOR PAINTING.

D. PIPING:

- PROVIDE CONDENSATE DRAIN PIPING WITH DRAINAGE FITTINGS FOR COOLING COILS AND ROUTE TO THE NEAREST APPROVED RECEPTOR.
- SIZE REFRIGERANT PIPING PER MANUFACTURER'S REQUIREMENTS. PROVIDE NECESSARY RISER TRAPS AS REQUIRED TO ENSURE PROPER RETURN OF REFRIGERANT.

EXHAUST FAN SCHEDULE

SYMBOL	MANUFACTURER AND MODEL NUMBER	LOCATION AND DRAWING REFERENCE	SERVICE	TYPE	CAPACITY (CFM)	SP (IN.)	RPM	BHP	DRIVE		ELECTRICAL CHARACTERISTICS					MOUNTING DETAIL	OPERATING WEIGHT (LB)	REMARKS
									TYPE	VFD	HP	VOLTS	PHASE	HERTZ				
EF 1	COOK ACW-B 165W4B	B2 LEVEL MH101	ELEV MACH RM	WALL MOUNTED CENTRIFUGAL	2,150	0.25	879	0.258	BELT	N	1/3	115	1	60	—	100		SEISMIC CERTIFICATION, BACK DRAFT DAMPER, ALUMINUM BIRDSCREEN, SPARE BELT SET

FAN CONTROL DIAGRAM (EF-1)

SCALE: NONE

SIDE WALL EXHAUST FAN

SCALE: NONE

HVAC WATERSIDE LEGEND

SYMBOL	ABBREV.	DESCRIPTION
CD	CD	CONDENSATE DRAIN PIPING
RL	RL	REFRIGERANT LIQUID PIPING
RS	RS	REFRIGERANT SUCTION PIPING
SYMBOL		DESCRIPTION
DOUBLE	SINGLE	
		PIPE ELBOW DOWN OR AWAY FROM VIEWER
		PIPE ELBOW UP OR TOWARD VIEWER
SYMBOL	ABBREV.	DESCRIPTION
		ANCHOR
		BALL VALVE
	EJ	EXPANSION JOINT
		FLANGE
	FS	FLOOR SINK (REFER TO PLUMBING DRAWINGS)
		FLOW IN DIRECTION OF ARROW
		SHUT OFF VALVE (REFER TO SPECIFICATIONS FOR TYPE)
	MV	MANUAL AIR VENT
		PIPE SUPPORT
		CONCENTRIC REDUCER
		TEMPERATURE SENSOR IN PIPING
		THERMOMETER IN PIPING
		UNION

HVAC ABBREVIATIONS

ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
A, AMPS	AMPERES	LVG	LEAVING
ABV	ABOVE	MA	MIXED AIR
AD	ACCESS DOOR	MAX	MAXIMUM
AFF	ABOVE FINISHED FLOOR	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
AFG	ABOVE FINISHED GRADE	MCA	MINIMUM CIRCUIT AMPACITY
AMB	AMBIENT	MFR	MANUFACTURER
AP	ACCESS PANEL	MIN	MINIMUM
ARCH	ARCHITECTURAL	MOCP	MAXIMUM OVERCURRENT PROTECTION
AUTO	AUTOMATIC	NC	NOISE CRITERIA
BEL	BELOW	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
BFG	BELOW FINISHED GRADE		
BHP	BRAKE HORSEPOWER		
BTUH	BRITISH THERMAL UNITS PER HOUR		
CAP	CAPACITY	NIC	NOT IN CONTRACT
CB	CIRCUIT BREAKER	OBD	OPPOSED BLADE DAMPER
CFM	CUBIC FEET PER MINUTE	OC	ON CENTER
CLG	CEILING	OFCl	OWNER FURNISHED AND CONTRACTOR INSTALLED OPENING
COMP	COMPRESSOR	OPNG	OPERATING
COND	CONDITION	OV	OUTLET VELOCITY
CONDOR	CONDENSER	PERF	PERFORATED
COP	COEFFICIENT OF PERFORMANCE	PD	PRESSURE DROP
CU	CONSTANT VOLUME	PH	PHASE
CV	CONSTANT VOLUME	PR, PRESS	PRESSURE
dB	DECIBEL	PSI	POUND PER SQUARE INCH
DB	DRY BULB TEMPERATURE	QTY	QUANTITY
DDC	DIRECT DIGITAL CONTROL	REFR	REFRIGERANT
DEFL	DEFLECTION	RH	RELATIVE HUMIDITY
DEMO	DEMOLITION	RLA	RATED LOAD AMPERES
DL	DOOR LOUVER	RPM	REVOLUTIONS PER MINUTE
DN	DOWN	SC	SENSIBLE CAPACITY
DSW	DISCONNECT SWITCH	SD	SMOKE DETECTOR
DWGS	DRAWINGS	SEER	SEASONAL ENERGY EFFICIENCY RATIO
EX, EXIST	EXISTING	SF, SQ FT	SQUARE FEET
EER	ENERGY EFFICIENCY RATIO	SG	SUPPLY GRILLE
EF	EXHAUST FAN	SHT	SHEET
EFF	EFFICIENCY	SO	SCREENED OPENING
ELECT	ELECTRICAL	SP	STATIC PRESSURE
ELEV	ELEVATION	SPEC(S)	SPECIFICATIONS
ENCL	ENCLOSURE	SS	STAINLESS STEEL
ENT	ENTERING	SW	SWITCH
ESP	EXTERNAL STATIC PRESSURE	TA	TRANSFER AIR
EVAP	EVAPORATOR, EVAPORATIVE	TC	TOTAL CAPACITY
F	DEGREES FAHRENHEIT	TE	TOP ELEVATION
FD	FLOOR DRAIN	TSP	TEMPERATURE
FLA	FULL LOAD AMPS	TYP	TYPICAL
FLEX	FLEXIBLE	UC	UNDER CUT
FPI	FINS PER INCH	UG	UNDERGROUND
FFM	FEET PER MINUTE	UL	UNDERWRITER'S LABORATORY
FS	FLOOR SINK	UON	UNLESS OTHERWISE NOTED
FT	FOOT	V	VOLTS
FV	FACE VELOCITY	VEL	VELOCITY
GAL	GALLONS PER MINUTE	VTR	VENT THRU ROOF
GPM	GALLONS PER MINUTE	W	WIDTH
H	HEIGHT	W/	WET BULB TEMPERATURE
HP	HORSEPOWER	WB	WATER GAUGE
HR	HOUR	WMS	WIRE MESH SCREEN
HTG	HEATING	W/O	WITHOUT
HVAC	HEATING, VENTILATING AND AIR CONDITIONING	WP	WEATHER PROOF
HZ	HERTZ	WT	WEIGHT
IN	INCH	WTR	WATER
KW	KILOWATT		
L	LENGTH		
LBS	POUNDS		
LRA	LOCKED ROTOR AMPERES		




HVAC AIRSIDE LEGEND

SYMBOL	FLOW ARROW	ABBREV.	DESCRIPTION
		SA	SUPPLY AIR
		RA	RETURN AIR
		EXH	EXHAUST AIR
		OSA	OUTSIDE AIR
		REL	RELIEF AIR
SYMBOL		ABBREV.	DESCRIPTION
DOUBLE	SINGLE		
			DUCTWORK (FIRST DIMENSION IN SIZE FACES THE VIEWER)
			DUCT RISE OR TURN TOWARD VIEWER
			DUCT DROP OR TURN AWAY FROM VIEWER
SYMBOL		ABBREV.	DESCRIPTION
DOUBLE	SINGLE		
		(E)	EXISTING DUCT, PIPE, OR EQUIPMENT
		(N)	EXISTING DUCT, PIPE, OR EQUIPMENT TO BE REMOVED
		(N)	NEW DUCT, PIPE, OR EQUIPMENT
		(L)	LINED DUCT: L = 1-INCH, 2L = 2-INCH, 3L = 3-INCH, ETC.
			FLEXIBLE DUCT CONNECTION
			TRANSITION: RECTANGULAR TO RECTANGULAR OR ROUND TO ROUND
			TRANSITION: RECTANGULAR TO ROUND
			RISE IN DIRECTION OF AIRFLOW
			DROP IN DIRECTION OF AIRFLOW
			MITERED ELBOW WITH TURNING VANES
			SMOOTH RADIUS ELBOW
			BRANCH DUCT PRESSURE TAP OR WYE BRANCH CONNECTION
			ROUND BRANCH DUCT CONICAL TAP
			FLEXIBLE DUCT TO CEILING DIFFUSER
		BDD	BACKDRAFT DAMPER
		FSD	COMBINATION FIRE/SMOKE DAMPER
		VD	MANUAL VOLUME DAMPER
		MD	MODULATING DAMPER
		SD	DUCT MOUNTED SMOKE DETECTOR PROVIDED UNDER ELECTRICAL SIDE WALL GRILLE OF 500 CFM (FLOW ARROW INDICATES TYPE)
			CAPPED DUCTWORK
SYMBOL		ABBREV.	DESCRIPTION
		CD	CEILING DIFFUSER OF 300 CFM (SHADING INDICATES BLANK OFF FOR NO THROW IN THAT DIRECTION)
		RG	RETURN GRILLE OF 300 CFM
		EG	EXHAUST GRILLE OF 300 CFM
			LOUWER (FLOW ARROW INDICATES TYPE)

HVAC NOTATION LEGEND

SYMBOL	ABBREV.	DESCRIPTION
	STAT	THERMOSTAT
	SW	SWITCH
	POC	POINT OF CONNECTION
	POD	POINT OF DISCONNECT OR DEMOLITION
		SHEET KEY NOTES DEMOLITION
		SHEET KEY NOTES NEW WORK
	DIA	DIAMETER
		DETAIL NUMBER
		DETAIL SYMBOL
		DRAWING NUMBER WHERE DETAIL IS SHOWN
		MECHANICAL EQUIPMENT ABBREVIATION
		MECHANICAL EQUIPMENT SYMBOL
		MECHANICAL EQUIPMENT NUMBER

CONSTRUCTION DOCUMENTS 100%

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							Approved: Project Director		Location		Building Number				
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